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APPLICATION NO.	FILING DATE	FIRST-NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,989	07/03/2001	John E. Mercer	DCI-15C2	7384

21833 7590 01/07/2004

BOULDER PATENT SERVICE INC
1021 GAPTER ROAD
BOULDER, CO 803032924

EXAMINER

SINGH, SUNIL

ART UNIT	PAPER NUMBER
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3673

DATE MAILED: 01/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/898,989

Applicant(s)

MERCER, JOHN E.

Examiner

Sunil Singh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-52, 55-66, 69-80, 83-94 and 97-114 is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) 41, 55, 69 and 83 is/are allowed.

- 6) ☒ Claim(s) 42-52, 56-66, 70-80, 84-94 and 97-114 is/are rejected.

- 7) ☐ Claim(s) ____ is/are objected to.

- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The finality of the last office action mailed 10/22/03 has been withdrawn

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 97,99, 101,103, 105-114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galle '433.

Galle discloses a drilling system for performing underground boring (see Fig. 1) including a drill rig (229), a monitoring arrangement comprising a detection at said drill rig for monitoring at least one operational parameter to produce a data signal relating to at least one of a utility to be installed in the underground bore (see col. 12 line 1+), the drill rig and the boring tool, a portable receiver (233) configured for movement by an individual operator (the surface monitoring and recording equipment (233) is configured for movement by an individual operator) receiving the data signal relating to the operational parameter for use by the portable device and said portable device includes a display arrangement configured for using the data signal for display to the individual operator of the portable device and a communication arrangement (231) for transferring the data signal from the drill rig to the portable device. Galle discloses the invention substantially as claimed. However, Galle is silent about one of the parameters being

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detected being out of a specified range (catastrophic). To detect parameters that are out of a specified range is old and well known in the art. It would have been considered obvious to one of ordinary skill in the art to modify Galle by making the detected parameter be out of a specified range as is well known in order to provide efficient drilling.

3. Claims 42-52, 56-66, 70-80, 84-94, 98, 100, 102 and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galle '433.

With regards to claims 42,56,70,84, Galle does not explicitly teach that one of the parameters is a locating signal. Locating signals are well known and old parameters when boring. It would have been considered obvious to one skilled in the art to modify Galle by having at least one of the parameters be a locating signal which is well known in the art in order to be able to locate the position of the drilling tool.

With regards to claims 43,47,57,61,71,75,85,89,98,100,102,104, Galle does not explicitly teach that one of the parameters is a push force signal. Push force signals are well known and old parameters when boring. It would have been considered obvious to one skilled in the art to modify Galle by having at least one of the parameters be a push force signal which is well known in the art in order to be able to avoid damaging the drilling tool by pushing it too hard in the event it encounters an obstacle.

With regards to claims 44-46, 58-60, 72-74, 86-88, Galle does not explicitly teach that one of the parameters is a predetermined value. To have set predetermined values (such as maximum temperature) are well known and old parameters when boring. It

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would have been considered obvious to one skilled in the art to modify Galle by having at least one of the parameters be a particular predetermined value (such as maximum temperature) which is well known in the art in order to be able to avoid damaging the drilling tool by overheating.

With regards to claims 48-49,62-63,76-77,90-91, Galle does not explicitly teach that one of the parameters is a mud signal. Mud signals are well known and old parameters when boring. It would have been considered obvious to one skilled in the art to modify Galle by having at least one of the parameters be a mud signal which is well known in the art in order to be able to stop boring when there is not enough mud to facilitate flushing to cut debris.

With regards to claims 50-52, 64-66, 78-80, 92-94, Galle does not explicitly teach that one of the parameters is a bend radius signal. Bend radius signals are well known and old parameters when boring. It would have been considered obvious to one skilled in the art to modify Galle by having at least one of the parameters be a bend radius signal which is well known in the art in order to be able to bore a deviated hole.

Response to Arguments

4. Applicant argues that Galle does not teach a portable device; instead applicant alleges Galle shows a building. There is no explicit teaching in the Galle reference suggesting that "233" is a building. It is disclosed as a "surface monitoring and recording equipment". As depicted in Figure 4, member/building "233" includes wheels; therefore it is portable. The examiner concedes that Galle does not disclose a display arrangement in the portable device and as such claims 41,55,69 and 83 are allowable.

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On the other hand applicant's argument with respect to claims 97,99,101,103 and 105-114 are far more limiting than the claimed subject matter, in particular said above mentioned claims do no call for the portable device to include a display arrangement. Applicant argues that his locating signal includes antennas etc. This is far more limiting than the claimed subject matter. Applicant argues that the locating signal cannot be transferred up the drill string. The examiner fails to see what precludes this from happening. Applicant alleges that the portable device needs to move to detect the location signal. This is not true.

With regards to applicant's allegation that out of range parameters and temperature parameters are not well known and old in the art. The examiner would like to direct applicant to US Patent 5,363,926.

With regards to applicant's allegation that locating signals are not well known and old in the art. The examiner would like to direct applicant to US Patents 4993503, 5337002.

With regards to applicant's allegation that push sensors are not well known and old in the art. The examiner would like to direct applicant to US Patent 5439064

Allowable Subject Matter

5. Claims 41,55,69 and 83 are allowed.

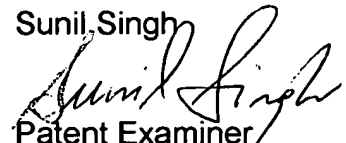
6. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sunil Singh whose telephone number is (703) 308-4024. The examiner can normally be reached on Monday through Friday 8:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on (703) 308-2978. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2168.

Sunil Singh

Patent Examiner
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SS

1/5/04